

MATERIANDERV, A.A., doktor tekhm. nauk [deceased]; GOUWHOV, M.M.;

MILESHKO, A.M.; TRALICH, K.M.

Ways of decreasing the crescent shape of strip k. the manufacture of helically welded pipe. Met. i gornorud. prom. no.4:46-47 Jl-Ag (MERA 18:7)

164.

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

MEIESHKO, A.M.; TKALICH, K.N.; YUKHNOVSKIY, Yu.M.

Studying the forward flow on continuous sheet rolling mills.

Met. 1 gornorud. prom. no.4:43-45 J1-Ag '65. (MIRA 18:10)

TKALICH L.G.

IORDANISHVILI, Ye.K.; TKALICH, L.G.

Semiconductor thermostat for self-oscillators. Zhur.tekh.fiz.
27 no.6:1215-1220 Je '57. (MLRA 10:8)

1.Institut poluprovodnikov Akademii nauk SSSR, Leningrad.

(Thermostat) (Oscillators, Crystal)

TRALICH, L. G.

57-6-10/36

AUTHOR TITLE

IORDANI SHVILI, Ye.K., TKALICH, L.G. Semiconducting Thermostat for Autogenerators

(Poluprovodnikovyy termostat dlya avtogeneratorov. Russian)

Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 6, pp 1215 - 1220 (U.S.S.R.)

PERIODICAL ABSTRACT

An apparatus for the keeping constant of the temperature of autogenerators as well as the construction of a thermostat by means of semiconductor-thermo-elements are described. The results of the investigations which had been carried out by the Institute for Semiconductors together with the Faculty for Radio Engineering of the Mozhayskiy-Academy are given. 1.) A thermostat with a battery which consumes 3 - 4 W of electric energy can keep constant 100 cc at 20 - 30 ° C and within a temperature fluctuation of from +60 to -60 ° C. 2.) The distribution of the quartz--autogenerator scheme, collected in a point- or plane triode, does not essentially increase the heat stress of the battery in a thermo-stablizing space. 3.) The blowing at the surface of the thermostat as well as of the radio-technical block is essential as the temperature within the block can be higher than 80 °C if the outer temperatures are 55 - 60 °C. 4.) In the case of work at low temperature conditions (-60°) an automatic switching off of the blowing, a regulation of the feeding current of the battery and an increase of the heat isolation of the thermostat must be provided. 5.) The heat-balance, i.e. the temperature demanded (+35°C) is attained in the thermostat within 20 - 40 minutes. 6.) The

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Semiconducting Thermostat for Autogenerators

57-6-10/36

scheme within the thermostat must be composed of parts which are moisture-resistant to a high degree. 7.) The inertia of the thermostat is different in the case of heating and in the case of cooling. It mainly depends on the temperature-fluctuation-amplitude as well as on the relation between the capacity of the battery and the heat stress. (With 5 illustrations and 5 Slavic references).

ASSOCIATION

Institute for Semiconductors of the Academy of Science of the U.S.S.R. (Institut Poluprovodnikov AN SSSR, Leningrad)

PRESENTED BY SUBMITTED

29.12.1956

AVAILABLE

Library of Congress

Card 2/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

- 1. TKALICH, N. M.
- 2. USSR (600)
- 4. Shchekino District Coal
- Report on the prospecting survey for coal in the North Shchekino section of the Shchekino District in the Tula Province. (Abstract) Izv. Glav. upr. geol. fon. no. 3, 1947.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

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- 1. THAT ICH, M. M.
- 2. USSR (600)
- 4. Coal Shchekino District
- Report on the prospecting survey for coal in the North Shchekino section of the Shchekino District in the Tula Province. (Abstract.) Izv. Glav. upr. geol. fon. no. 3, 1947.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

SHANTER, Yu.A.; TKALICH, N.Ye.

Ultrasonic control of cast parts. Zav.lab. 25 no.7:884 159. (MIRA 12:10)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.
(Founding-Testing) (Ultrasonic testing)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

SHANTER, Yu.A.; TKALICH, N.Ye.

Ultrasonic inspection of weld seams. Zav.lab 25 no.7:818-821
(MIRA 12:10)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii. (Welding-Testing)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

28 (5) AUTHORS:

Shanter, Yu. A., Tkalich, N. Ye.

sov/32-25-7-18/50

TITLE:

Ultrasonic Control of Welding Seams (Ulitrazvukovoy kontroli

svarnykh shvov)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 7, pp 818 - 821

(USSR)

ABSTRACT:

The quality control of welding seams by means of ultrasonics and prismatic feeler gauges (FG) of the system TeNIITMASh can take place according to two schemes - with a direct ray and a reflected ray. The distance of the front surface of the (FG) from the middle of the welding seam, under consideration of the different rates of propagation of the longitudinal and transversal ultrasonic waves, is determined by means of an equation. Other equations serve for the determination of the position of the defect for the direct and the reflected sound ray. In the present case corresponding nomographs were drawn by means of equations, for (FG) with angles of 50 and 40° (Fig 2), and thus a considerable simplification of the computation was achieved. The work with such nomographs is illustrated by the example of the definition of the quality of a welding seam with a motal thickness of 10 mm. An appliance was designed for the exact

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Ultrasonic Control of Welding Seams

scv/32-25-7-18/50

displacement limit of the (FG) (Ref 1). A description of the working technique is given for the detection of cracks. Welding seams of bridge cranes, welded by hand, were tested according to the described method. Special samples of welding seams were produced with the standard types of defects (pores, cracks, slag enclosures etc) and the connection was examined between the shape of the echo signal on the screen of the crack detector and the kind of the defect. The investigations were carried out by means of the crack detector UZD-7N with frequencies of 2.5 megacycles. It was found that a provisional estimation can be made with regard to the kind of defect in the welding seam (Fig 4). There are 4 figures and 2 Soviet references.

ASSOCIATION:

Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii (kyznok Works for Locomotive Construction imeni Oktyabr'skaya revolyutsiya)

Card 2/2

28(5)

SOY/32-25-7-39/50

AUTHORS:

Shanter, Yu. A., Tkalich, N. Ye.

TITLE:

Attempt at Ultrasonic Control of Castings (Opyt ul'trazvuko-

vogo kontrolya litykh detaley)

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, p 884 (USSR)

ABSTRACT:

The sensitivity of ultrasonic control was examined by controlling forgings and castings. The examinations were carried out with the apparatus UZD-7N and a feeler gauge at frequencies of 2.5 megacycles. The sensitivity curves obtained are given (Fig). In examining castings of large dimensions it was difficult to obtain the surface purity required ($\nabla \nabla 6, \nabla \nabla \nabla 7$). In these cases the roughly treated surface ($\nabla 2, \nabla 3$) of such castings was filled and it was found that thus a sufficiently sensitive control could be carried out. Upon increasing the thickness of the filler layer, however, the sensitivity of control decreases. Cast cog wheels of steel 45KhNT and cast die castings of steel 5KhNV were ultrasonically controlled by the method

described. There is 1 figure.

Card 1/2

Attempt at Ultrasonic Control of Castings

SOV/32-25-7-39/50

ASSOCIATION: Luganskiy teplovozostroitel nyy zavod im. Oktyabr skoy revolyutsii (Lugansk Lecometive Construction Factory imeni Oktyabr skaya revolyutsiya)

Card 2/2

DOLIDZE, G.V., kand.biolog.nauk; VOLKOVA, L.P., starshiy nauchnyy sotrudnik; NESTERENKO, N.I., kand.biolog.nauk; TKALICH, P.P.

· 数字符号的。"新疆"的基础的基础的基础的基础的基础的是一个数字符号。

From practices in the use of poisonous chemicals. Zashch. rast. ot vred. i bol. 8 no.9:20-21 S '63. (MIRA 16:10)

1. Institut sadovodstva, vinogradarstva i vinodeliya Gruzinskoy SSR (for Dolidze). 2. Pskovskaya sel'skokhozyaystvennaya opytnaya stantsiya (for Volkova). 3. Laboratoriya toksikologii Vsesoyuznogo nauchno-issledovatel'skogo instituta sakharnoy svekly, Kiyev (for Nesterenko).

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

TKALICH, P.P., mladshiy nauchnyy sotrudnik

Biological mathod for controlling the borer Pyrausta mubilalis Zashch. rast. ot vred. i bol. 6 no.8:24-25 Ag *61. (MIRA 15:12)

l. Vsesoyuznyy nauchno-issledovatel'skiy institut lubyanykh kul'tur, g. Glukhov, Sumskoy obl.

(Hemp-Diseases and pests)

(Pyralid moths-Biological control)

(Trichogramma)

- 1. TKALICH, S. M.
- 2. USSR (600)
- 4. Geological Research
- 7. Botanical methods in geological exploration. Bot. zhur. 37 no. 5, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953, Unclassified.

- 1. TKALTCH, S. M.
- 2. USSR 600
- h. Prospecting
- 7. Contents of iron in plants as a prospecting criterion, Priroda, 42, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

TKALICH, Serafim Mironovich; KRASNIKOV, V.I., red.; VERSTAK, G.V., red.izd-ve; BYKOVA, V.V., tekhn.red.

[Practical guide on the biogeochemical method of prospecting for ore deposits] Prakticheskoe rukovodstvo po biogeo-khimicheskomu metodu poskov rudnykh mestorozhdenii. Moskva. Gos. nauchno-tekhnizd-vo lit-ry po geol. i okhrane nedr. 1959. 50 p. (MIRA 12:8) (Geochemical prospecting) (Indicators (Biology))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

ANTIPOV, G.I.; IVASHCHENKO, M.A. [deceased]; KORABEL'NIKOVA, V.V.;
KOSYGIN, M.K., dotsent; KUZHETSOV, G.A., dotsent; PEKARIN,
P.M.; ROSLYAKOV, G.V., dotsent; STRAKHOV, L.G.; CHERNYSHEV,
G.B., red.; TKALICH, S.M., red.; MUKHIN, S.S., red.izd-va;
GUROVA, O.A., tekhn.red.

[Angara-Ilim iron ore deposits of trap formation in the southern Siberian Platform] Angaro-Ilimskie zhelezorudnye mestorozhdeniis trappovoi formatsii iuzhnoi chasti Sibirskoi platformy. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1960. 375 p. (MIRA 13:10)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr.
2. Geologi Irkutskogo geologicheskogo upravleniya (for Antipov.
Ivashchenko, Korabel'nikova, Pekarin, Strakhov). 3. Irkutskiy
gornometallurgicheskiy institut (for Kosygin, Roslyakov). 4. Irkutskiy gosudarstvennyy universitet (for Kuznetsov). 5. Glavnyy
inzh. Irkutskogo geologicheskogo upravleniya (for Tkalich).

(Angara-Ilim region--Iron ores)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

EYKADOROV, V.S., red. toma; PEKARETS, P.A., red. toma; RADCHENKO, G.P., red. toma; RYADOKON', N.F., red. toma; TKALICH, S.M., red. toma; IZRAILEVA, G.A., ved. red.

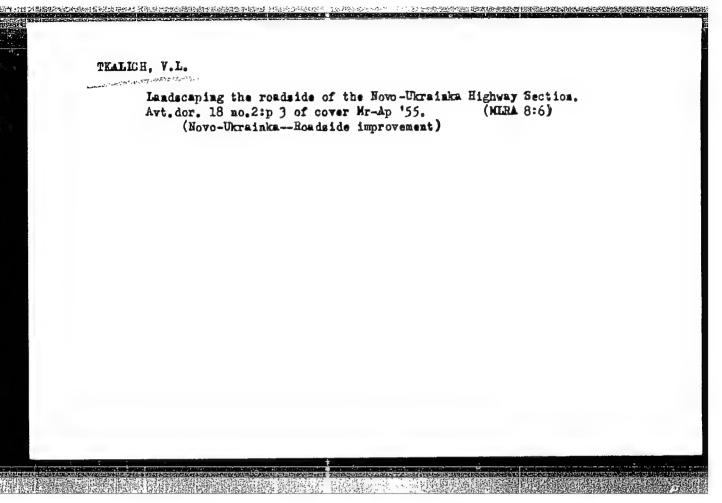
[Geology of coal and oil shale deposits in the U.S.S.R.] Geologiia mestorozhdenii uglia i goriuchikh slantsev SSSR. Vol.8. 1964. 790 p. (MIRA 17:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy geologicheskiy komitet.

Studies of karst carried out by the Southern Ural Geological
Administration; theses. Nov.kar.i spel. no.2:65-66 '61.

(Ufa Valley—Karst)

(Belaya Valley (Bashkiria)—Karst)



ACC NR: AR7000838

SOURCE CODE: UR/0058/66/000/009/G001/G001

AUTHOR: Saltanov, M. V.; Tkalich, V. S.

TITLE: Nonstationary problem in magnetic gas dynamics

SOURCE: Ref. zh. Fizika, Abs. 9G1

REF SOURCE: Visnyk Kyyivs'k. un-tu. Ser. fiz. ta khim., no. 6, 1966, 75-77

TOPIC TAGS: gas dynamics, linear equation, nonstationary problem, magnetic gas dynamics, relativistic problem, three dimensional problem, symmetry integral, steady state motion, Riemann wave, nonsteady flow, cyclic coordinate, hydrodynamics

ABSTRACT: The relativistic nonstationary problem of gas dynamics and magnetic gas dynamics is analyzed in the three-dimensional form for a case of two cyclic coordinates. A complete set of symmetry integrals is obtained. These are then used to derive an equation identical, except for the notations, to Rudnev's form of Sedov's equation in the theory of plane steady-state motions. Conditions are obtained in which the problem is reduced to the solution of a linear equation.

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UDC: 538, 4

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Riemann waves are analyzed. An auxiliary function is introduced which satisfies the				
linear equa	tion, and by means of which all form. [Translation of abstr	l the physical param	eters are e	pressed [SP]
SUB CODE:	20/			
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Cord 2/2				!

Steady states of a high-temperature plasma. A plasma column in a longitudinal magnetic field. Zhur. tekh. fiz. 32 no.12:1418-1427 D '62. (MIRA 16:2) (Plasma (Ionized gaseb)) (Magnetic fields)

5/179/61/000/002/012/017 E081/E141

Tkalich, V.S., and Tkalich, Ye.F. (Sukhumi) AUTHORS:

The correspondence between stationary flow in TITLE:

hydrodynamics and magneto-hydrodynamics

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh

nauk, Mekhanika i mashinostroyeniye, 1961, No.2,

pp. 115-116

The paper is a continuation of previous work by V.S. Tkalich (Ref. 4: Sbornik voprosu magnitnoy gidrodinamiki i dinamiki plazmy, Riga, 1959, p. 191; Ref.5: the present journal, 1960, No.1). The system of vector equations for the ideal magneto-hydrodynamics of an incompressible fluid are quoted from H. Alfvén (Cosmic Electrodynamics, IL, 1952). If the electric field vanishes, then in the stationary state ($\frac{3}{6}t = 0$) the equations reduce to :

$$\operatorname{div} \mathbf{H} = 0, \quad \operatorname{div} \mathbf{V} = 0, \quad \mathbf{V} = \varphi \mathbf{H}$$

$$\nabla w = \mathbf{V} \times \operatorname{rot} \mathbf{V} - \frac{1}{4\pi\rho} \mathbf{H} \times \operatorname{rot} \mathbf{H}, \quad w = \frac{1}{2} \mathbf{V}^2 + \frac{P}{\rho} + P \tag{1}$$

Card 1/ 2

The correspondence between \$/179/61/000/002/012/017

where $\varphi = \varphi(\mathbf{r})$ is a function of the coordinates. (Abstractor's note: φ is the only quantity in Eq.(1) defined in the paper). If $4\pi\varphi^2 \neq 1$ the equations reduce to the simpler form (Eq.3) by introducing:

$$s \equiv \operatorname{sign}(4\pi\rho\varphi^2 - 1), \qquad \xi \equiv \pm \sqrt{s\left(\varphi^2 - \frac{1}{4\pi\rho}\right)}, \quad U \equiv \xi H$$
 (2)

$$\nabla (sw) = U \times \text{rot } U, \quad \text{div } U = 0, \quad (U\nabla) \xi = 0$$
 (3)

The first two equations in (3) coincide with the system of equations of stationary hydrodynamics, except that differing symbols are used. The solutions of these equations enable comparisons to be made of the kinetic and magnetic energies of the field and the solutions are compared with those obtained earlier by other workers. Acknowledgements are expressed to N.V.Saltanov There are 6 Soviet references.

SUBMITTED: October 11, 1960

Card 2/2

TKALICH, V.S. (Sukhumi); TKALICH, Ye.F. (Sukhumi)

Conformity between stationary motions in hydrodynamics and magnetohydrodynamics. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i maskinostr. no.2:115-116
Mr-Ap '61.

(Hydrodynamics) (Magnetohydrodynamics)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

TKALICH, V.S. (Sukhumi); TKALICH, Ye.F. (Sukhumi)

Nordationary spiral movements in multicomponent magratchydrodynamis.

PMTF no.6:8.26 N.D. 161. (MIRA 14:12)

(Magnetohydrodynamics)

TKALICH, Ye.F.; TKALICH, V.S.

Steady states of a high-temperature plasma. A plasma column in a longitudinal magnetic field. Zhur. tekh. fiz. 32 no.12:1418-1427 D '62. (MIRA 16:2) (Plasma (Ionized gaseb)) (Magnetic fields)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

31627 S/207/61/000/006/002/025 A001/A101

26.1410

AUTHORS: Tkalich, V.S., Tkalich, Ye.F. (Sukhumi)

TITLE: On non-steady screw motions in multi-component magnetic hydrodynamics

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961, 8 - 16

TEXT: The purpose of this work was investigation of non-steady screw motions in multi-component magnetic hydrodynamics. The authors introduce in the analysis the analogs of electromagnetic potentials (φ , rotB) and total momentum (P_k) of the unit of mass of k-type ions. A definition of "screw" motions is given as motions satisfying the condition:

 $rot P_k = a_k (P_k - \frac{u_{k}}{cm_k} rot B)$ (1.4)

The present work is restricted to studying "homogeneous" screw motions in which $a_k=a_k(t)$ i.e., quantities are independent of space coordinates. Then the system of equations given is linear with respect to the functions sought for, which

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On non-steady screw motions ...

are magnetic and electric fields and velocities V_k . Solving the system the authors express magnetic field in terms of a single vector F depending on coordinates and time and electric field in terms of the gradient of an arbitrary harmonic function γ_0 . If $a_k \neq 0$, momenta P_k and velocities V_k are expressed in terms of vector F. If $a_k = 0$, momentum P_k is a gradient, and such motions represent a generalization of potential motions in conventional hydrodynamics. Using harmonic-conjugated functions the authors solve the system of equations for the case of potential motions and find the vector fields of quantities E, H and V_k . The next case considered is steady motions; in case of the absence of any magnetic field, the equation of motion in the steady case is reduced to Bernoulli's equation. In the case of traveling waves, energy W_k depends on magnetic field H_0 and derivatives of function F. Several extreme cases of function F presenting a special interest are analyzed. One or another form of this function is selected depending on the mutual orientation of the magnetic field vector and direction of propagation of traveling waves. For the case of waves traveling along the magnetic field H_0 , which is applicable to plasma waveguides in which magnetic field is oriented along the waveguide axis, the form of F-function looks as follows:

 $F = F(q_1, q_2, \gamma_3 x_3 + \omega t)$ (5.1)

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31627 \$/207/61/000/006/002/025

On non-steady screw motions ...

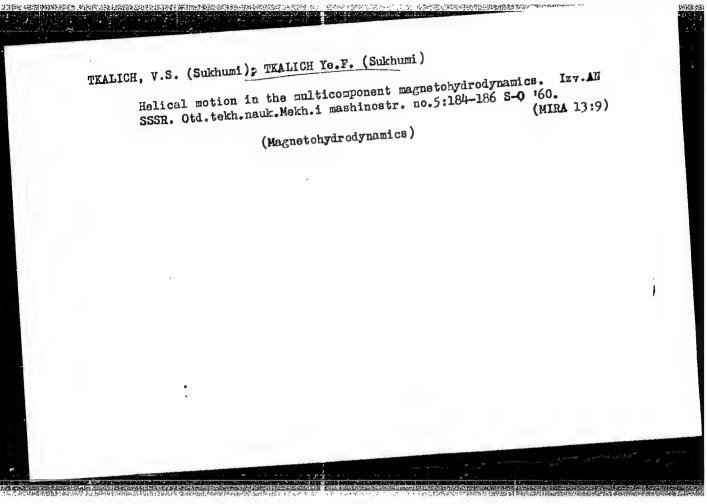
As an example the authors consider propagation of axial-symmetrical waves in a cylindrical waveguide. Introducing dimensionless quantities for frequency, density and phase velocity the authors derive a dispersion equation and find the conditions under which its solution is a real quantity. There are 17 references, 16 of which are Soviet-bloc.

SUBMITTED: February 16, 1961

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Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"



IVANOV, Boris Nikolayevich; TKALIN, Ivan Mikhaylovich; SOLMTSKV, Vyacheslav Aleksandrovich; SHTRUM, Viktor L'vovich; SHEXTDER, Roman Izrayle-vich; MAYANSKIY, Tosif Isaakovich; BORISOVA, Volya Petrovna; ARUTTU-NOV, V.O., retsenzent; BLEKHSHTEYH, L.I., red.; SOBOLEVA, Ye.M., tekhn.red.

[Technology of the manufacture of electric instruments] Tekhnologiia elektropriborostroeniia. Moskva, Gos.enorg.izd-vo, 1959.

(MIRA 13:4)

(Electric apparatus and appliances)

TKALIN, Ivan Mikhaylovich; SHTRUM, Viktor L'vovich; MAYOROV, S.A., kand. tekhn. nauk, retsenzent; BLEKHSHTEYN, L.I., inzh., red.; SOBOLEVA, Ye.M., tekhn. red.

[Automation and mechanization in the manufacture of electrical instruments]Mekhanizatsiia i avtomatizatsiia v elektropriborostroenii. Moskva, Gosenergoizdat, 1962. 331 p. (MIRA 15:12)

(Electric instruments) (Automation)

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Malani'ror. [6.2] [Rybysher]. Special reacure 12. [18] Smithing Processes With the Introduction of Group Machining of Parts 2.	<pre>Manager Conditions of Piece and Small-look Production to the Unitered 296</pre>	Brighter A.B. [Lestagred]. The Experience of introducing Group-Processing 226 Nethods in an Optical-Mechanical Flant	remarks, the family of Basilta of Several Years Committee of a Plant 280 belowing Care, [Leningred]. The Hamilta of Several Years Committee Commit	Richtgal, P.D. [Lesingud]. The Amprisons of the Indiagram Scientifica Scientifica (Control Sc	II. GENERAL FROBLENS IN GROUP PROCESSING.	This Like Landing ad]. Throduction of Continuous Production Nothed and Mathematical Land Landing Continue in Electric Landing wanter two terms of Landing Continue in Electric Landing Continue in Electric Landing Continue in Electric Landing Continue in Electric Landing Continue in	Mago_B_Es.[Lestofred]. Experience in Application of the Group Method in 216 Sectio-Lessably Operations	de serod av	<pre>Pedarre.C.A. [Foreneit]. Group [Processing] Liess and Closed Sectors in Small 229 Lot Production</pre>	day h.B. [Moscow]. Multiproduct Production Lines (From the work aspeciance 224 of the Crystantingrom Institute)	BOALLAM ALT. [Moscow]. walkiproduct (Group) Setup of Special and Chimmessi. Boalting Tools (From the Work Experience of the "Erannyy Proleterty" Fight (Special Colors)	THE CY CONTESTS)	Conference on Story Processing in the Nonline and Estimator Story Conference were considerable formation and Estimated Processing in the Nonline and Estimated Processing the Processing in the Processing of the Conference were called by Release Tailor and Conference were considered by Release Tailor and Conference of Industry in Introduction to Estimate Propriate Processing and Estimated Processing on Propriate Processing and Processing and Processing on Processing October 1997 (Processing Processing P	PURPOSE: This collection of articles is intended for technical personnel in wa- chies plants, designing organization, and actantific-research institutes. It may also be useful to skilled workers.	Ed. ("lite page): 3.P. Mitrofanow, Lenin Prize Winner, Candidate of Technical Coloner; Eds.; A.S. Bazore, Candidate of Technical Coloners, F.J. Sarvey, Candidate of Technical Coloners, A.S. Talvay, Maddidae of Technical Coloners, A.S. Talvay, Maddidae of Technical Coloners, A.S. Talvay, Maddidae of Rechnical Sciences; Manging Ed. for Literature on Mathia-Saidjan, Talvator Coloners, Manging Ed. for Literature on Mathia-Saidjan, Talvator Coloners (Managed Separtment, Mangin); Jef., Manage, Engliseer; Ed. of Publishing House: N.Z. Simonwally: Sech. Eds. O.F. Spransings.	Gruppresym teathnologiys w machinistroyenii i priborostroyenii (Jrun-Froossing Mathoda in the Wachine and instrument industries) Posture, Mathoda, 1955. JTS p. Errete slip inserted, 7,000 copies printed.	Yeascyumoya soveshchaniye po gruppovya technologichoskim proteessam v meshinostroy- emii i pribometroyami. ist, Leningma, 1950	PHASE I BOOK EXPLOSTANCE SCY/4754	

Use of a multicycle continuous line for the production of electric instruments. Vest.elektroprom. 31 no.1:55-58 (MRA 13:5) Ja '60. (Assembly-line methods) (Electric apparatus and appliance)

VLASOV, Mikhail Fedorovich; PIGIN, Sergey Mikhaylovich; CHERVYAKOVA, Vera Ivanovna; LAVRUKHIN, M.A., retsenzent; TKALIN, I.M., retsenzent; LEKHSHTEYN, L.I., red.; ZHISHNIKGVA, O.S., tekhn. red.

[Assembly and adjustment of electric measuring devices]Sborka i regulirovka elektroizmeritel'nykh priborov. Izd.2., perer. i regulirovka, Gosenergoizdat, 1963. 260 p. (MIRA 16:3) (Electric meters)

PANKOV, S.Ye.; TKANKO, N.V.

First steps in lowering the production costs on the "Proletarskii" State Cattle-Breeding Farm, Zhivotnovodstvo 20 no.5:24-30 My 158. (MIRA 11:5)

1. Direktor plemsovkhoza "Proletarskiy," Ryazanskaya oblast' (for Pankov), 2. Glavnyy zootekhnik plemsovkhoza "Proletarskiy," Ryazanskaya oblast' (for Tkanko).

Ryazanskaya oblast' (for Tkanko).

(Dairy cattle breeding)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

17. 化二氢的银矿等基础的高级。但是自然国际高级的特殊的是一位是一

TKANOV,	Safety of operations on die casting machines. no.7:38-39 J1 *62. (Die casting—Safety measures)	Lit.proizv. (MIRA 16:2)

TKANY, Z.

"Torpedoing in hydraulic drilling."

p. 299 (Vodni Hospodarstvi) No. 11, Nov. 1957
Prague, Czechoslovakia

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April 1958

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Rotating worm boring, a new boring method for soft rocks. p.191. (Stavivo, Vol. 35, No. 5, May 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

TKANY, Z.; JEDLICKA, M.

Core bores with large profiles. p. 212. (Inzenyrske Stavby, Vol. 5, No. 4, Apr. 1957, Fraha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

THAM!, A.

THOMBOLGU

periodicals: RUDE Vol. 6, no. 12, Dec. 1058

THAMY, Z. Hole boring for screen blasting. p. 512.

Honthly List of East European Accessions (EFML) LC Vol. 2, no. 5

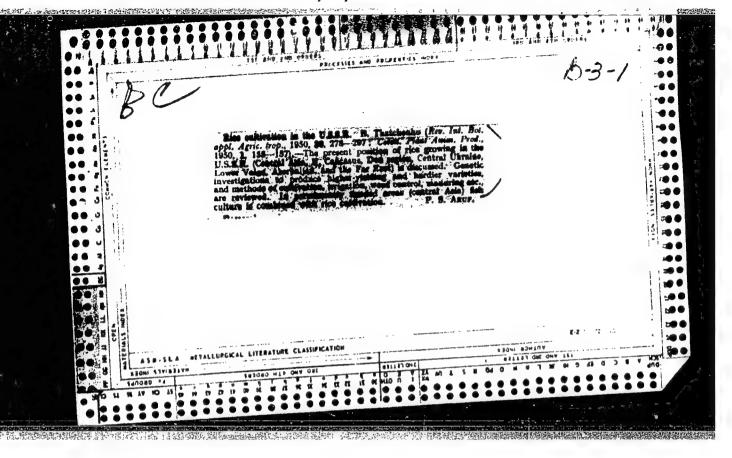
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TKARY, Z.

The determination of the boring ability of rocks.

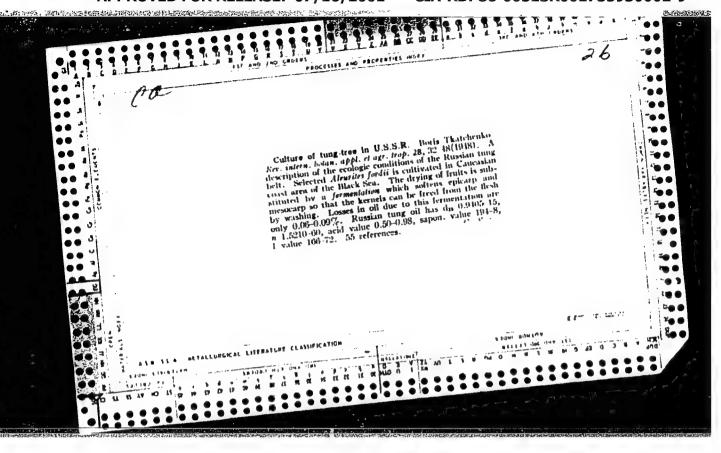
p. 524 (Inzenyrske Stavty) Vol. 5, no. 10, Cct. 1957, Fraha, Czechoslovakia

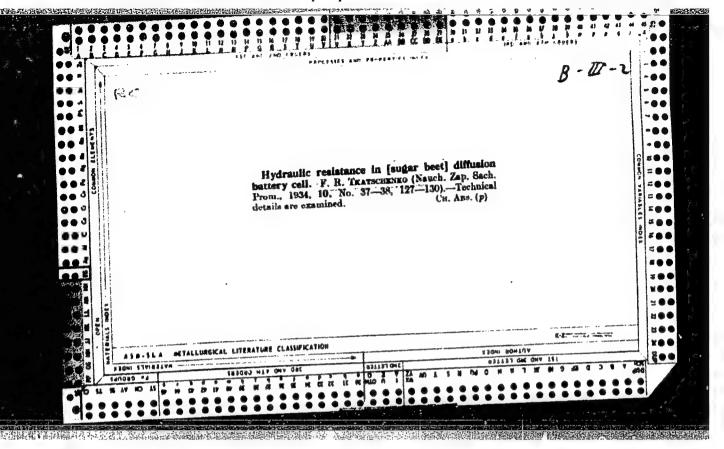
SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NC. 1, JAN. 1958

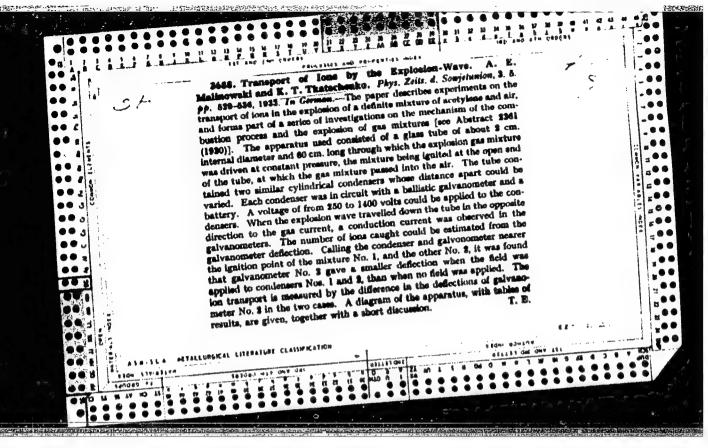


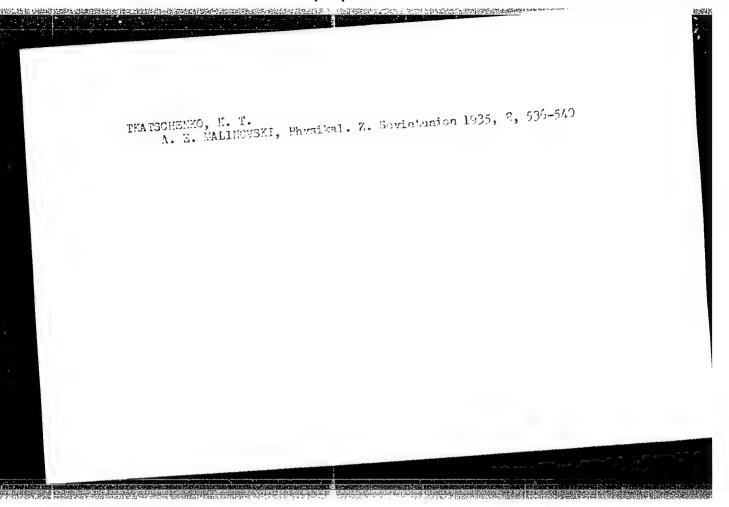
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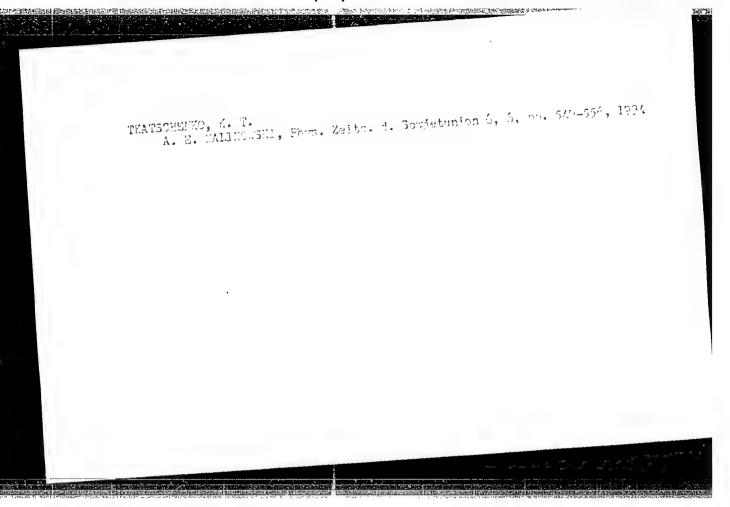
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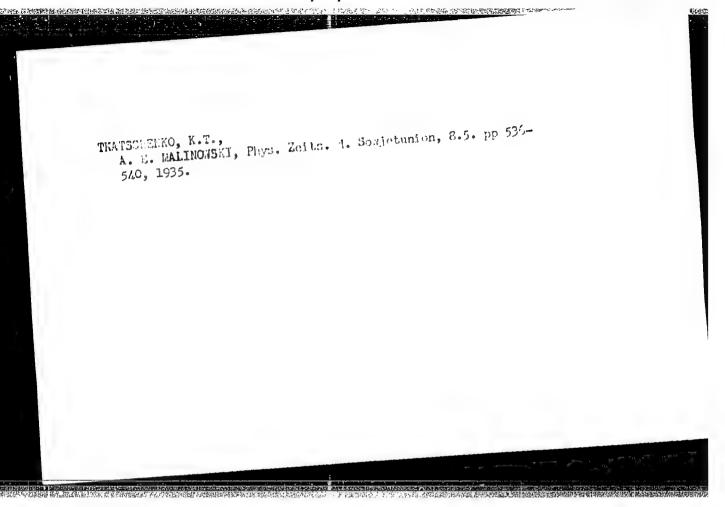






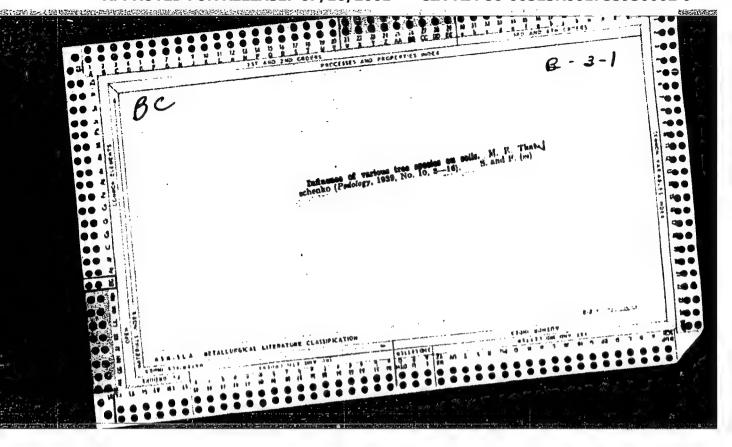


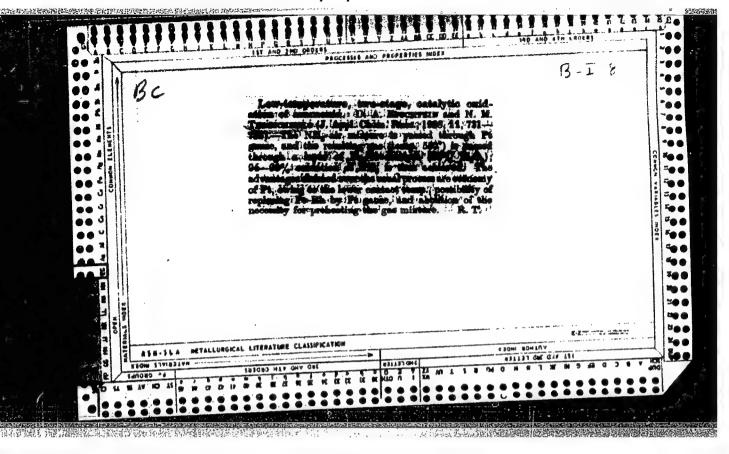
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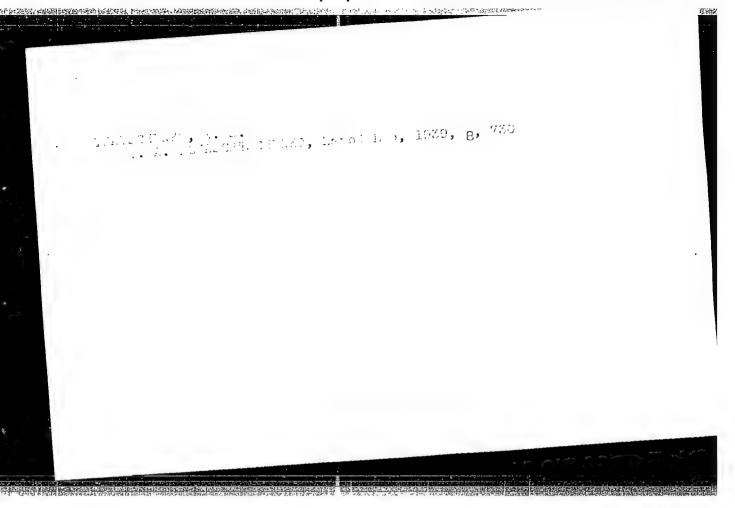


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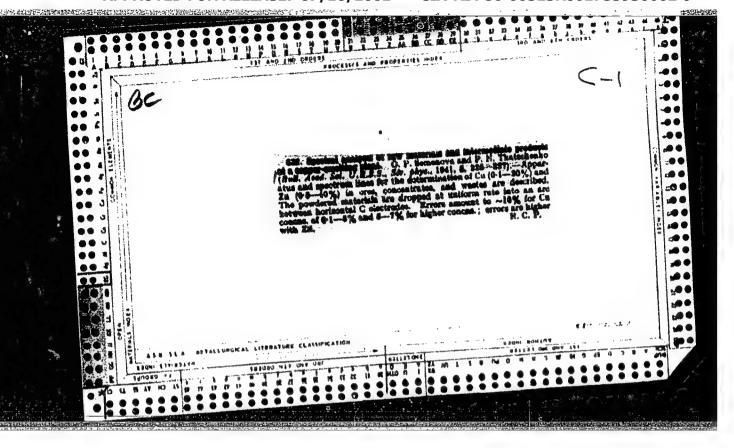
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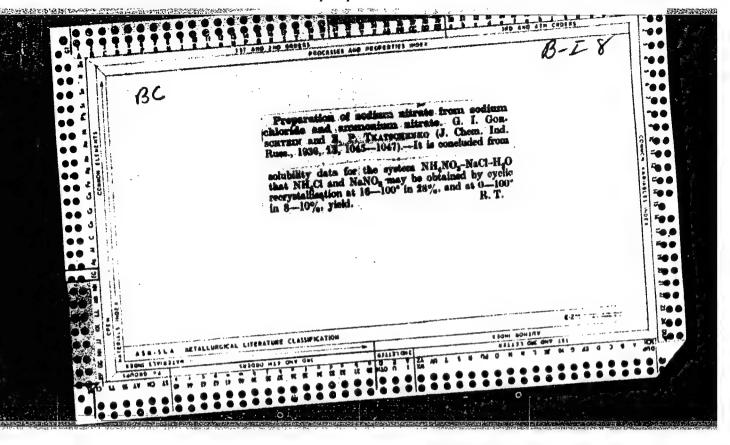


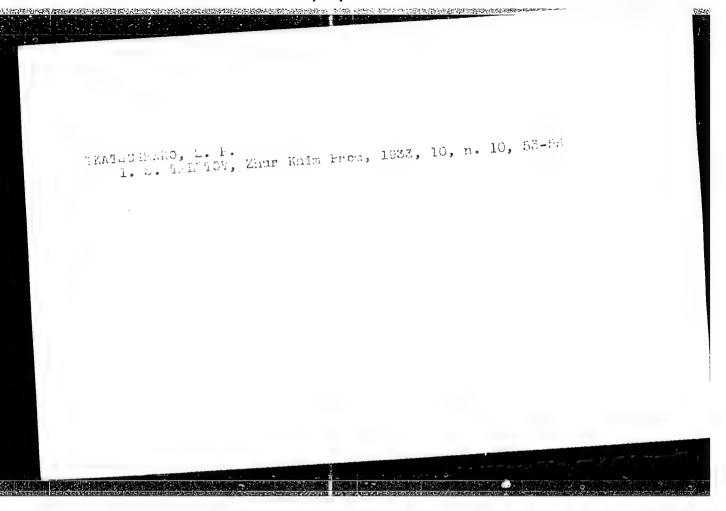




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TKATSHENKO, G. V.

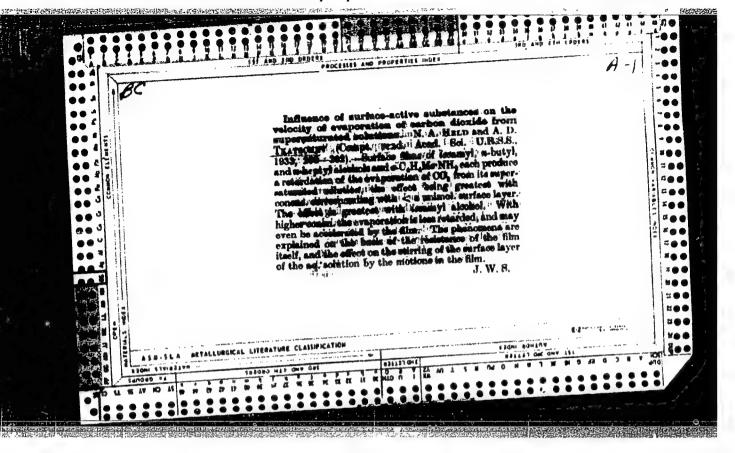
G. V. Tkatshenko and P. M. Khomikovskiy

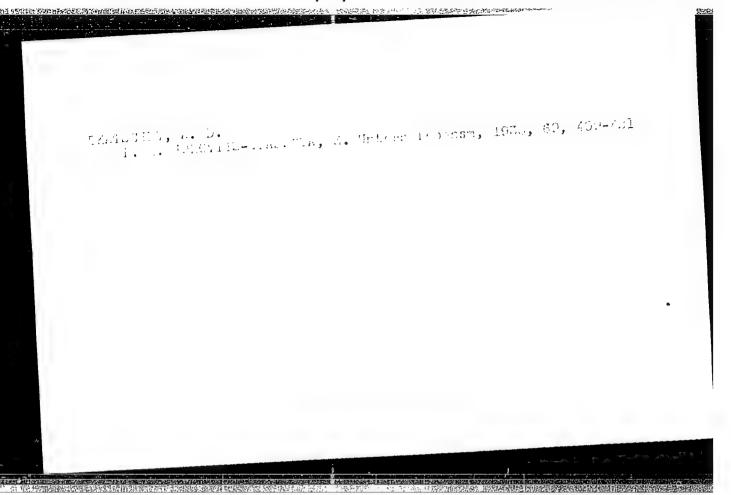
"The Mechanism of Emulsion Polymerization. Polymerization of 1.1-Dichloroethylene in Emulsifier-Solutions", Colloid Journal 13, 217-225, June 1951, Moscow

ABSTRACT AVAILABLE

D-50054

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PASSINSKIY, G.M., inzn. (heningrad); TKALICH, M.B. (feningrad)

Frotesting radiators from treeving in all conditioning systems.

Vod. 1 aan. tekh. nc.2312-13 F 164

(MIRA 1832)

TKALICH, S.M.; MINEYEV, I.K., glavnyy red.; RYABENKO, V.Ye., zam. glavnogo red.; KUR'YANOV, F.K., otv. red.; TUMOL'SKIY, L.M., zam. glavnogo red.; KUR'YANOV, F.K., otv. zav vypusk; BASSOLITSYN, Ye.P., red.; BLINNIKOV, I.I., red.; DAUKSHO, Yu.Ye., red.; DZINKAS, Yu.K., red.; ZHARKOV, M.A., red.; ZAVALISHIN, M.A., red.; MANDEL'BAUM, M.M., red.; MATS, V.D., red.; MALETOV, P.I. red.; NOMOKONOVA, N., red.; NOSEK, A.V., red.; SERD, A.I., red.; SEMENYUK, V.D., red.; TAYEVSKIY, V.M., red.; TIKHONOV, V.L., red.; TROFIMUK, I.N., red.; TOMILOVSKAYA, M.V., red.; FOMIN, N.I., red.; SHAMES, P.I., red.; TROSHANIN, Ye.I., tekhn. red.

[Biogeochemical anomalies and their interpretation.] Biogeokhimicheskie anomalii i ikh interpretatsiia. Irkutsk, 1961. 39 p. (Materialy po geologii i poleznym iskopaemym Irkutskoi oblasti no.3).

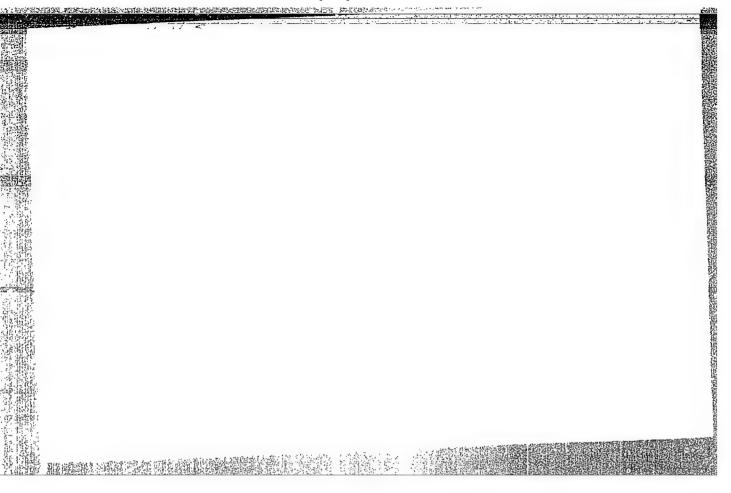
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TKALICH, V.S.

Focusing in a linear accelerator by means of traveling waves [with summary in English]. Ukr. fiz. zhur. 2 no.4:299-302 O-D 157. (MIRA 11:3)

1. Fiziko-tekhnichniy institut AN URSR.

(Particle accelerators)



AUTHOR:

TKALICH, V.S.

TITLE:

On the Possibility of Focussing in a Linear Scoelerator by Means of a Travelling Wave. (O vozmoshnosti fokusirovki lineynom

uskoritele begushchey volnoy, Russian)

PERIODICAL:

Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 3, pp 625-626 (U.S.S.R.)

Received: 6 / 1957

Reviewed: 7 / 1957

ABSTRACT:

By a modification of the method of radial- and phase stabilization by the introduction of periodic inhomogeneities into the wave conductor (of. V.MYRON, L.GOOD, Phys.Rev. 92, 538, 1953) the possibility of a stabilization of the motion of heavy particles by means of a focussing travelling wave of an additional generator is here theoretically discussed. The nonrelativistic equations of motion are first solved for synchronic particles by successive approximations. Next, small disturbances of the motion are examined and the conditions for simultaneous radial- and phase stability are derived. By the addition of nonlinear terms expressions for the angular capture domain and the permitted dispersion of velocities are obtained. (6 Citations from Works Published).

ASSOCIATION:

Physical-Technical Institute of the Academy of Science of the

PRESENTED BY:

SUBMITTED:

AVAILABLE:

20.12.1956

Card 1/1

Library of Congress

AUTHORS: Stepanov, K. N., Tkalich, V. S. SOV/57-58-8-28/37

TITLE: On Electron Plasma Vibrations in External Electric and Magnetic Fields (O kolebaniyakh elektronnoy plazmy vo vneshnikh elektricheskom i magnitnom polyakh)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp. 1789 - 1800 (USSR)

ABSTRACT: This paper gives an account of the study of the propagation of electromagnetic waves in a plasma placed in cross-wise

of electromagnetic waves in a plasma placed in cross-wise of electromagnetic waves in a plasma placed in cross-wise arranged electric and magnetic fields. The thermal motion of the electrons is taken into consideration and the behaviour of the plasma waves is studied in detail. The fundamental equations are laid down and formula (19) for the dispersion equations are laid down and formula (19) for the dispersion is deduced. Several limiting cases involved in this equation is deduced. Formulae (39) - (42) are deduced. They take according to the influence of the collision of the electrons with count of the influence of the collision of the electrons with heavy particles per gap width (na shirinu razryvov). In the heavy particles per gap width (na shirinu razryvov). In the final part the vortex field is also considered (rot $E \neq 0$) final part the vortex field is also considered from (46). The refraction index of the plasma waves is computed from (46).

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Card 1/2

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SOV/57-58-8-28/37

On Electron Plasma Vibrations in External Electric and Magnetic Fields

All solutions of (46) in the entire frequency range, for which

(46) is valid, can only be obtained, if $E_0 = 0$. A. I.

Akhiyezer suggested the problem and supervised the work, Ya. B. Faynberg and A. G. Sitenko discussed the results with the authors. There are 9 references, 8 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR, Khar'kov (Physical and

Technical Institute, AS USSR, Khar'kov)

SUBMITTED: April 27, 1957

Card 2/2

"APPROVED FOR RELEASE: 07/16/2001

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507/179-59-4-18/40

10(4) AUTHOR:

TITLE:

Tkalich, V. S. (Sukhumi)

Investigation of the System of Equations of Magnetic Hydrowhich the the state of the stat

mechanics

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, 1959, Nr. 4, pp 134-135 (USSR)

ABSTRACT:

The system of equations of ideal magnetic hydromechanics (hydromechanics of incompressible liquids) is first written down in the absolute Gaussian unit system (Ref 1). For the steady case $\partial/\partial t = 0$, the system can be written down in form of (1) after integration of the induction equation. This system is studied in any orthogonal coordinate system (q_1, q_2, q_3) . The investigation is restricted to $\partial/\partial q_3 = 0$, and the method by I. S. Gromeka (Refs 3,4) is generalized for this case. The general solutions of the first two equations (1) have the form of (2). Formula (2) is substituted into the third component of the induction equation, $\partial \phi/\partial q_3$ is assumed

Card 1/2

to be equal to 0 (ϕ is the electrostatic potential), and a Jacobian equation (Ref 5) is obtained, the general solution

SOV/179-59-4-18/40

Investigation of the System of Equations of Magnetic Hydromechanics

of which has the form of (3). When the cross derivations of function P are set equal to each other, an equation is obtained which gives a further Jacobian equation by means of (2). The third component of the equation of motion has a similar form. The total solution of this system is (4). These equations (4) constitute a system of equations which are linear with respect to H and V. If the determinant of the system is not equal to zero, the system can be solved with respect to H and V, and the formulas (5) are obtained. By use of (2) the two first components of the equation of motion (1) can be represented in form of (6). This formula is equivalent to Pfaff's equation. H and V are eliminated, and formula (7) is obtained by means of (5). On the assumption of (8), formula (7) can be simplified to formula (9). The general solution of (9) is equation (10). If the conditions of (11) are applicable, formula (10) becomes linear .- P. Ya. Kochina discussed the results of the investigation with the author. N. V. Saltanov and T. R. Soldatenkov showed continuous interest in the present investigation. There are 6 Soviet references.

SUBMITTED: Card 2/2

December 29, 1958

10.4000

SUV/179-59-5-21/41

Tkalich, V. S. (Sukhumi)

AUTHOR: TITLE:

Transformation of a System of Equations for the

Hydrodynamic Approximation of Plasma 1

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh

nank, Mekhanika i mashinostroyeniye, 1959, Nr 5,

pp 122-123 (USSR)

ABSTRACT: The plasma of N types of ions considered in a stationary Maxwell system **d/d**t = 0 is defined by

Eq (1), where ϕ is the electrostatic potential.

The general solution can be presented in the form of

Eq (2), where ψ and ψ_{k} - stream functions,

 h_3 - the third Lame coefficient; $H = h_3H_3$, $V_k = h_3V_{k3}$, If Eq (2) is substituted in the equation of ion motion,

Eq (1) (k-type), then the formula

 $J(\psi_k, \alpha_k \psi + v_k) = 0$

can be obtained, the solution of which can be shown as

Eq (3). Thus, the magnitude of H can be defined as Eq (4). By excluding V_k from the third equation of Eq (3), the expression Eq (5) can be obtained from which the formula (6) is derived for the first two Card 1/2

SOV/179-59-5-21/41
Transformation of a System of Equations for the Hydrodynamic Approximation of Plasma

components of the equation of ion motion (k-type):

ts of the equation of ion motion (11),
$$\nabla^{\mathbf{w}_{k}} = (\mathbf{v}_{k} \times \mathbf{vot} \ \mathbf{v}_{k})^{*} + \alpha_{k} (\mathbf{v}_{k} \times \mathbf{H})^{*},$$

$$\nabla^{\mathbf{w}_{k}} = (\mathbf{v}_{k} \times \mathbf{vot} \ \mathbf{v}_{k})^{*} + \alpha_{k} (\mathbf{v}_{k} \times \mathbf{H})^{*},$$

The system of equations (5) and (6) can be shown in the linear form as Eq (7), which, together with Eqs (2) to (4), determines the magnetic field and the velocity. Acknowledgments are expressed to N.V.Saltanov for his advice. There are 4 Soviet references.

SUBMITTED: December 29, 1958

Card 2/2

s/179/60/000/01/030/034

E032/E514

10.2000A

A Study of the Equation of Magnetic Hydromechanics in Tkalich, V.S. (Sukhumi) AUTHOR:

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh

nauk, Mekhanika i mashinostroyeniye, 1960, Nr 1,

ABSTRACT: The present paper is a continuation of previous work reported by the author in Ref 1. The notation employed

is defined in that paper, where it was shown that in the steady state the system of equations of ideal magnetic hydromechanics is given by Eq (1) of the present paper,

The analysis of these equations given in Ref 1 is continued in the present note, using the method of

I. S. Gromeka (Refs 1-6). The analysis is carried out in an arbitrary orthogonal system of coordinates

(q1, q2,q3) assuming that the quantities H, v, D,

and w are independent of q₃. The two-parameter solenoidal fields H and v were shown in Ref 1 to be solenoidal fields \underline{H} and \underline{v} Card 1/3

S/179/60/000/01/030/034 E032/E514

A Study of the Equation of Magnetic Hydromechanics in the Two-Parameter Case

given by Eq (2), where H and V are given by Eq (3) given by Eq (2), where H and V all strong of χ and and ψ , ψ_0 , α , β are all arbitrary function of q_1 and the latter quantity is an arbitrary function of q1 q2. Substituting Eq (2) into Eq (1), one finds that the electrostatic potential is a function of the parameter t. Moreover, the arbitrary function β can be expressed moreover, the arbitrary function potential \$\Pi\$ in the form in terms of the electrostatic potential \$\Pi\$ in the form $\beta = cd \Phi/d \xi$. Thus, all the equations in Eq (1) can be integrated in a closed form except for the first two components of the equation of motion (Eq. 5). If the determinant of the system given by Eq (3) has a non-zero value, then the parameter & is conveniently chosen to be of the form given by Eq (6). The quantities H and V are then given by Eq (7). Integration of the equation of motion (Eq 5) yields the solution given by Eq (8), which can also be rewritten in the form given by Eq (10). If w is of the form defined by Eq (11), where a, a and a and a are arbitrary constants, then the basic equation (Eq 10)

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S/179/60/000/01/030/034 E032/E514

A Study of the Equation of Magnetic Hydromechanics in the Two-Parameter Case

becomes linear. The analysis is then continued for the special case of a cylindrical system of coordinates and assuming that the functional relationship $J(\xi, r) = 0$ exists. An expression is derived for the total pressure P(r). A further special case discussed is that in which the determinant of Eq (3) is equal to zero. Acknowledgments are made to N. V. Saltanov and Ye.F. Tkalich for valuable discussions.

There are 8 references, 7 of which are Soviet and 1 English.

SUBMITTED: October 23, 1959

Card 3/3

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9

TKALICH, V.S. (Sukhumi); TKALICH Ye.F. (Sukhumi)

Helical motions in the multicomponent magnetohydrodynamics. Izv.AH

SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:184-186 S-Q '60.

(MIRA 13:9)

(Magnetohydrodynamics)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

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Tkalick V.S.; Pakhomov, V.I.

TRAILCR. Value Filled With a Liquid
Files Elastic Waves in a Thin Toroidal Tube Filled With a Liquid

RECODICAL: Ukrayins'kyy Fizychnyy Zhurnal, 1960, Vol. 5, No. 1, pp. 115 - 117

The generation of homogeneous acoustic fields in a liquid is of great importance for certain technical purposes (Ref. 1). A homogeneous acoustic field (according to period) can be generated in a resonator which is shaped like a toroidal tube filled with a liquid. In such a system, a wave can be established which runs along the tube's axis (Ref. 2). Mathematically and by considering the potential of the liquid's velocity, the deformation vector in a hard body, the velocity of the sound in the liquid (c), the longitudinal (ce) and body, the velocity of the sound in the liquid, the normal tension component on transverse (ct) sound velocities in the liquid, the normal tension component on inner surface of the tube, as well as a number of other factors, the authors tensive a formula by which the phase speed can be calculated:

 $\frac{1}{2} + \frac{1}{2} + \frac{1}$

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86813 S/185/60/005/001/013/018

Elastic Waves in a Thin Toroidal Tube Filled With a Liquid

The phase speed calculated according to where $a = (\frac{c_t}{c_e})^2$, $b = (\frac{c_t}{c})^2$, $d = 2 \frac{\rho r_v}{\rho_0 \Delta r}$. the above formula (for the minus symbol) coincides with the results of the calculation and the experiment (Ref. 4) in the case of small frequencies. The ra dicant expression in the formula is a positive value. It has been established that there are always two different undamped waves, which correspond to two so-Iutions (8) of the own frequencies equation (7). The relationship of the ener gy flow in the wall of the tube to the energy flow in the liquid q at d>1 is (9)

expressed in the following way: $q = \frac{a(\Omega^2b - 1)}{2d} \cdot \frac{a^2 + (1 - a)^2}{(1 - a)(1 - 2a)^2}$

Therefore, if the phase speed is close to the sound velocity in the liquid, then the greated part of the energy is concentrated in the liquid. Thus, the homogeneity of the acoustic field in a liquid is attained (on the average according to period) owing to the thinness of the tube. In closing, the authors express treir gratitude to K.D. Syel'nykov, O.I. Akhiyezer, V.S. Humenyuk, H.Ya. Lyubars'kyy and M.A. Khyzhnyak for valuable discussions. There are 4 references: 3 Soviet and 1 English.

Carc 2/3

S/185/60/005/001/013/018 A151/A029

Tastic Waves in a Thin Toroidal Tube Filled With a Liquid

95 CTATION: Fizyko-tekhnichnyy instytut AN URSR (Physico-Technical Institute,

AS UkrSSR)

DJEMITTED: October 17, 1959

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Sard 3/3

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10.8000

Saltanov, N. V., Tkalich, V. S.

TITLE :

AUTHORS :

Magnetohydrodynamic Waves of Finite Amplitude

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 10,

pp. 1253 - 1255

TEXT: From the set of equations (1) for an ideal, incompressible fluid of ideal conductivity the authors derived equation (7),

 $\left[\left(\frac{\partial}{\partial t} + v_0 \frac{\partial}{\partial r}\right)^2 - v_\alpha^2 \frac{\partial^2}{\partial r^2}\right] \overrightarrow{\psi} = 0; \ v_\alpha^2 = H_0^2 / 4\pi\varrho, \text{ on the condition that all}$

physical quantities depend on time and one coordinate. The general solution (Ref. 4) of equation (7) is given by $\vec{\psi} = \vec{\psi}_{+}(\mathbf{r} - \int \mathbf{v}_{0} dt + \mathbf{v}_{\alpha} t) + \vec{\psi}_{-}(\mathbf{r} - \int \mathbf{v}_{0} dt)$ $v_{\alpha}t$) (8), where the vectors $\vec{\psi}_{+}$ and $\vec{\psi}_{-}$ are arbitrary functions of their arguments. Equation (9), $\vec{h} = \vec{\psi}_{+}^{\dagger} + \vec{\psi}_{-}^{\dagger}$, $\vec{v}_{-} = (1/\sqrt{4\pi Q})(\vec{\psi}_{+}^{\dagger} + \vec{\psi}_{-}^{\dagger})$, holds for the fields h and v. This solution describes the sum of two waves

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Magnetohydrodynamic Waves of Finite Amplitude \$/057/60/030/010/017/019 B013/B063

propagating along a constant magnetic field in opposite directions. The conducting fluid is assumed to propagate along the field at a velocity $\mathbf{v}_{o}(t)$. The latter is an arbitrary time function. In this wave, the vector of the variable part of the magnetic field strength is arbitrarily polarized. The following relations hold for $\mathbf{v}_{o} = 0$:

$$\vec{\psi} = \vec{\psi}_{\perp} (\mathbf{r} + \mathbf{v}_{\alpha} \mathbf{t}) + \vec{\psi}_{\perp} (\mathbf{r} - \mathbf{v}_{\alpha} \mathbf{t})$$

$$\vec{h} = \vec{\psi}_{\perp} + \vec{\psi}_{\perp}, \quad \vec{\mathbf{v}} = (1/\sqrt{4\pi\varrho}) (\vec{\psi}_{\perp} - \vec{\psi}_{\perp})$$
(10)

In waves having the form of (10), the vectors \vec{h} and \vec{v} , in general, are not parallel. As a result, there is one component of the alternating field in the direction of a constant magnetic field (contrary to the Alfvén and Valen waves). The authors thank Ye. F. Tkalich for discussions. There are 4 Soviet references.

SUBMITTED: April 8, 1960

Card 2/2

TRALICH, V.S

s/056/60/039/01/12/029 B006/B070

AUTHOR:

Tkalich, V. S.

TITLE:

Waves of Finite Amplitude in a Multi-component Conducting

PERIODICAL:

Zhurnal eksperimental noy i teoreticheskoy fiziki, 1960,

Vol. 39, No. 1 (7), pp. 73-77

The purpose, for which the present work was undertaken, was to reduce the system of equations which in hydrodynamical approximation describes a non-perfect plasma which consists of N kinds of ions each of which may be considered to be an incompressible fluid) to a linear system. With this reduction the assumption that the signal be small is avoided. The propagation of waves with finite amplitude is investigated for the case when the neutral plasma is situated in a constant homogeneous magnetic field. Some conditions for the applicability of the hydrodynamical approximation to a plasma are mentioned. Thus, for example, to satisfy the condition of incompressibility, the plasma temperature should be so high that the thermal velocity substantially exceeds the

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Waves of Finite Amplitude in a Multicomponent Conducting Medium

S/056/60/039/01/12/029 B006/B070

translational velocity. Results obtained for a two-component plasma (particularly the phase velocity) are compared with the results of other authors (S. I. Braginskiy, Ref. 3, S. I. Syrovatskiy, Ref. 15). In conclusion, the choice of appropriate boundary value conditions is considered. The author thanks N. V. Saltanoy and Ye. F. Tkalich for discussions. There are 15 references: 12 Soviet, 2 American, and

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SUBMITTED: October 22, 1959

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"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9

TKALICH, V. S.

Cand Phys-Math Sci - (diss) "Several non-linear problems of plasma dynamics." Sukhumi, 1961. 12 pp; (Physics-Technical Inst Academy of Sciences Georgian SSR); 250 copies; price not given; (KL, 10-61 sup, 205)

S/179/61/000/002/012/017 E031/E141

Tkalich, V.S., and Tkalich, Ye.F. (Sukhumi) AUTHORS:

The correspondence between stationary flow in TITLE:

hydrodynamics and magneto-hydrodynamics

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1961, No.2,

pp. 115-116

The paper is a continuation of previous work by V.S. Tkalich (Ref.4: Sbornik voprosu magnitnoy gidrodinamiki i dinamiki plazmy, Riga, 1959, p. 191; Ref.5: the present journal, 1960, No.1). The system of vector equations for the ideal magnetohydrodynamics of an incompressible fluid are quoted from H. Alfvén (Cosmic Electrodynamics, IL, 1952). If the electric field vanishes, then in the stationary state ($\frac{\partial}{\partial t} = 0$) the equations reduce to :

 $\operatorname{div} \mathbf{H} = 0$. (1) $\nabla w = V \times \text{rot } V - \frac{1}{4\pi\rho} H \times \text{rot } H$,

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The correspondence between

S/179/61/000/002/012/017 E081/E141

where $\phi = \phi(\mathbf{r})$ is a function of the coordinates. (Abstractor's note: ϕ is the only quantity in Eq.(1) defined in the paper). If $4\pi \phi^2 \neq 1$ the equations reduce to the simpler form (Eq.3) by introducing:

$$s \equiv sign (4\pi\rho \phi^3 - 1), \qquad \xi \equiv \pm \sqrt{s \left(\phi^3 - \frac{1}{4\pi\rho}\right)}, \quad U \equiv \xi H$$
 (2)

$$\nabla (sw) = U \times \text{rot } U, \quad \text{div } U = 0, \quad (U\nabla) \xi = 0$$
 (3)

The first two equations in (3) coincide with the system of equations of stationary hydrodynamics, except that differing symbols are used. The solutions of these equations enable comparisons to be made of the kinetic and magnetic energies of the field and the solutions are compared with those obtained earlier by other workers. Acknowledgements are expressed to N.V.Saltanov for his participation in the discussions. There are 6 Soviet references.

SUBMITTED: October 11, 1960

Card 2/2

31073

S/179/61/000/005/004/022 E031/E426

AUTHOR:

Tkalich, V.S. (Sukhumi)

TITLE:

On unsteady motion in non-ideal magnetic hydromechanics

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye

tekhnicheskikh nauk, Mekhanika i mashinostroyeniye.

v.5. 1961, 22~29

The fundamental squations are transformed by the TEXT: introduction of a curvilinear coordinate system, and the discussion limited to the case when the physical quantities and the Lame coefficients are independent of the third coordinate. A system of four scalar squations is obtained from which can be determined the stream functions, and the three components of the velocity and magnetic fields. If the coordinate system is cartesian, two non-linear equations are obtained for the stream functions, the remaining quantities are obtained by solving these equations and substituting in the other squations. A number of exact solutions are given for special cases which include steady motion, inviscid fluid and the absence of transverse components of the magnetic Acknowledgments are expressed to Ye.F. Tkalich for I.S. Gromek and S.A. Regirer are mentioned in the discussion. Card 1/2

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\$/179/61/000/005/004/022 E031/E426

On unsteady motion in non-ideal ...

article for their contributions in this field. There are 27 references: 14 Soyset-bloc and 13 non-Soviet-bloc. The four most recent references to English language publications read as follows:

Ref. 8: Williams W.E. J. Fluid. Mech., 1960, v.8, no.3; Ref. 9: Shmoya J., Mishkin E. Phys. of Fluids, 1960, v.3, no.4; Ref. 22: Long R.R. J. Fluid. Mech., 1960, v.7, no.1;

Ref. 23: Kapur J.N. Appl. Scient. Res., 1960, v.A9, no. 2-3.

January 9, 1961 SUBMITTED:

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31627 s/207/61/000/006/002/025 A001/A101

26.1410

Tkalich, V.S., Tkalich, Ye.F. (Sukhumi) AUTHORS:

On non-steady screw motions in multi-component magnetic hydrodynamics TITLE:

Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961, PERIODICAL:

The purpose of this work was investigation of non-steady screw motions in multi-component magnetic hydrodynamics. The authors introduce in the analysis the analogs of electromagnetic potentials (φ , rotB) and total momentum (P_k) of the unit of mass of k-type ions. A definition of "screw" motions is given as motions satisfying the condition:

rot $P_k = a_k (P_k - \frac{m_e k}{cm_b} \text{ rot } B)$ (1.4)

The present work is restricted to studying "homogeneous" screw motions in which $a_k = a_k(t)$ i.e., quantities are independent of space coordinates. Then the system of equations given is linear with respect to the functions sought for, which

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On non-steady screw motions ...

are magnetic and electric fields and velocities V_k . Solving the system the authors express magnetic field in terms of a single vector F depending on coordinates and time and electric field in terms of the gradient of an arbitrary harmonic function Ψ_o . If $a_k \neq 0$, momenta P_k and velocities V_k are expressed in terms of vector F. If $a_k = 0$, momentum P_k is a gradient, and such motions represent a generalization of potential motions in conventional hydrodynamics. Using harmonic-conjugated functions the authors solve the system of equations for the case of potential motions and find the vector fields of quantities E, H and V_k . The next case considered is steady motions; in case of the absence of any magnetic field, the equation of motion in the steady case is reduced to Bernoulli's equation. In the case of traveling waves, energy W_k depends on magnetic field H_o and derivatives of function F. Several extreme cases of function F presenting a special interest are analyzed. One or another form of this function is selected depending on the mutual orientation of the magnetic field vector and direction of propagation of traveling waves. For the case of waves traveling along the magnetic field H_o , which is applicable to plasma waveguides in which magnetic field is oriented along the waveguide axis, the form of F-function looks as follows:

 $F = F(q_1, q_2, \gamma_3 x_3 + \omega t)$ (5.1)

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On non-steady screw motions ...

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As an example the authors consider propagation of axial-symmetrical waves in a cylindrical waveguide. Introducing dimensionless quantities for frequency, density and phase velocity the authors derive a dispersion equation and find the conditions under which its solution is a real quantity. There are 17 references,

SUBMITTED: February 16, 1961

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9"

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755930002-9

SALTANOV, N.V. (Sukhumi); TKALICH, V.S. (Sukhumi)

Riemann waves. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.6:
26-32 N-D *61. (MIRA 14:11)

(Magnetohydrodynamics)

28776 \$/057/61/031/010/009/015 B109/B102

10.2000 11.6712

Tkalich, V. S., and Saltanov, N. V.

TITLE:

Waves of finite amplitude in non-ideal magnetohydrodynamics

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 10, 1961, 1231-1235

TEXT: The present paper deals with computing the properties of a wave of finite amplitude, propagating along a magnetic field, in dependence on conductivity, viscosity, and other plasma parameters. If V and H are functions of time and of a space coordinate r, the relations $H_1 = H_0/r^n$, $V_1 = v_0/r^n$ can be derived from the known basic equations

$$\frac{\partial \mathbf{H}}{\partial t} = \operatorname{rot}(\mathbf{V} \times \mathbf{H} - \mathbf{v}_{m} \operatorname{rot} \mathbf{H}), \quad \operatorname{div} \mathbf{H} = 0, \quad \operatorname{div} \mathbf{V} = 0,$$

$$\frac{\partial \mathbf{V}}{\partial t} + \nabla \mathbf{W} = \mathbf{V} \times \operatorname{rot} \mathbf{V} - \frac{1}{4\pi\rho} \mathbf{H} \times \operatorname{rot} \mathbf{H} - \operatorname{v} \operatorname{rot} \mathbf{V},$$

$$\mathbf{W} = \frac{V^{2}}{2} + \frac{\rho}{\rho} + F.$$
(1)

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Waves of finite amplitude ...

(H_o denotes an arbitrary constant, $v_o = v_o(t)$ an arbitrary function of time, n = 0 (plane symmetry) or 1 (cylinder symmetry), subscript 1 denotes the components of the vectors \vec{V} and \vec{H}). The energy W of the unit mass of the fluid considered (without magnetic-field contribution) is assumed to be a linear function of the second and third space coordinates q_2 and q_3 : W = w(r,t) + q_2q_2 + q_3q_3 , where $q_2(t)$, $q_3(t)$ are arbitrary functions of time. In this case, the linear equations

$$\left(D_{2m} + \frac{\partial}{\partial r} \frac{v_0}{r^n}\right) H_2 = \frac{\partial}{\partial r} \frac{H_0}{r^n} V_2; \quad \left(D_2 + \frac{v_0}{r^n} \frac{1}{r^n} \frac{\partial}{\partial r} \frac{r^n}{r^n}\right) V_2 = \\
= \frac{H_0}{4\pi\rho} \frac{1}{r^{2n}} \frac{\partial}{\partial r} r^n H_2 - \frac{Q_1}{r^n}, \quad \left\{D_{2m} = \frac{\partial}{\partial t} - v_m \frac{\partial}{\partial r} \frac{1}{r^n} \frac{\partial}{\partial r} r^n; \quad D_2 = \frac{\partial}{\partial t} - v \frac{\partial}{\partial r} \frac{1}{r^n} \frac{\partial}{\partial r} r^n, \quad \left\{D_{3m} + \frac{v_0}{r^n} \frac{\partial}{\partial r}\right\} H_3 = \frac{H_0}{r^n} \frac{\partial V_3}{\partial r}; \quad \left\{D_3 + \frac{v_0}{r^n} \frac{\partial}{\partial r}\right\} V_3 = \\
= \frac{H_0}{4\pi\rho r^n} \frac{\partial H_3}{\partial r} - Q_3, \quad \left\{D_{3m} = \frac{\partial}{\partial t} - v_m \frac{1}{r^n} \frac{\partial}{\partial r} r^n \frac{\partial}{\partial r}; \quad D_3 = \frac{\partial}{\partial t} - v_m \frac{1}{r^n} \frac{\partial}{\partial r} r^n \frac{\partial}{\partial r}.\right\} \tag{4}$$

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Waves of finite amplitude ...

hold for the second and third components of \widetilde{H} and \overrightarrow{V} . By adequate specializations the results obtained are identical with those obtained by S. A. Regirer (DAN SSSR, 127,)83, 1959; IFZh, 2, no. 8, 1959), Ya. S. Uflyand (ZhTF, XXX, 799, 1960) and I. B. Chekmarev (ZhTF, XXX, 338, 1960; ZhTF, XXX, 920, 1960). Upon introducing the vector potential

$$\begin{bmatrix}
\left(\frac{\partial}{\partial t} + \upsilon_0 \frac{\partial}{\partial r} - v \frac{\partial^2}{\partial r^2}\right) \left(\frac{\partial}{\partial t} + \upsilon_0 \frac{\partial}{\partial r} - v_m \frac{\partial^2}{\partial r^2}\right) - \frac{H_0^2}{4\pi\rho} \frac{\partial^2}{\partial r^2} \right] \mathbf{a} = \\
= H_0 \mathbf{e} \times \mathbf{Q} + \mathbf{C}' \quad \mathbf{Q} \equiv (Q_2, Q_3), \quad \mathbf{C} \equiv (C_2, C_3)$$
(9)

 $\frac{\left[\left(\frac{\partial}{\partial t} + v_0 \frac{\partial}{\partial r} - v \frac{\partial^2}{\partial r^2}\right) \left(\frac{\partial}{\partial t} + v_0 \frac{\partial}{\partial r} - v_m \frac{\partial^2}{\partial r^2}\right) - \frac{H_0^2}{4\pi\rho} \frac{\partial^2}{\partial r^2}\right] \mathbf{a} = }{= H_0 \mathbf{e} \times \mathbf{Q} + \mathbf{C}' \quad \mathbf{Q} \equiv (Q_2, Q_3), \quad \mathbf{C} \equiv (C_2, C_3),}$ is obtained for \mathbf{a} , where \mathbf{e} is the unit vector in the direction of r. Special cases: (A) $\mathbf{v}_0 = \mathbf{y} = \mathbf{y}_m = \mathbf{Q} = \mathbf{C} = \mathbf{0}$. Then,

$$A_{2} = \frac{h_{03}}{k} \sin(kr) \sin(\omega t + \varphi_{3}), A_{3} = -\frac{h_{02}}{k} \sin(kr) \sin(\omega t + \varphi_{2}),$$

$$\omega = \frac{skH_{0}}{\sqrt{4\pi_{2}}}, \quad (s = \pm 1),$$
(11)

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Waves of finite amplitude ...

will be a solution of (9), where h_{02} , h_{03} , ϕ_{2} , ϕ_{3} are arbitrary constants. From the vector potential one obtains as usually \vec{H} , \vec{V} , and \vec{E} :

$$H_{\bullet} = h_{0\bullet} \cos(kr) \sin(\omega t + \varphi_{\bullet}),$$

$$V_{\bullet} = \frac{sh_{0\bullet}}{\sqrt{4\pi\rho}} \sin(kr) \cos(\omega t + \varphi_{\bullet}), \quad (e = 2, 3).$$
(12)

 $\vec{E}=-\left[\vec{V}\cdot\vec{H}\right]/c$. If there is a fluid layer of the thickness L between two layers of ideal conductance at r=0 and r=L, the dispersion equation

 $ω = smπH / L \sqrt{4πQ}$ is obtained for this layer from the conditions of continuity, m being an integral number. (B) $\vec{Q} = \vec{C} = 0$: the solution of (9) is

$$v_{1} = -v_{0} + \frac{ik(y + v_{m})}{2} + \frac{sH_{0}}{\sqrt{4\pi\varrho'}} \sqrt{1 - \frac{\pi\varrho k^{2}(y - v_{m})^{2}}{H_{0}^{2}}}$$
(14),

where a_{oe} is an arbitrary complex constant, and k denotes the wave number Card $4/\varsigma$

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